BUREAU OF ENVIRONMENT
CONFERENCE REPORT

SUBJECT: NHDOT Monthly Natural Resource Agency Coordination Meeting
DATE OF CONFERENCE: April 19, 2017
LOCATION OF CONFERENCE: John O. Morton Building
ATTENDED BY:

NHDOT
Matt Urban
Sarah Large
Ron Crickard
Meli Dube
Kerry Ryan
Steve Johnson
Ali Skinner
Colleen White
Kathy Corliss
Don Lyford
Victoria Chase
Matt Healey
Jim Kirouac
Joe Adams
Kevin Dagle
Jim Curoak
Sam Fifield
Magee Baldwin
Michael Licciardi

Federal Highway Administration
Jamie Sikora

ACOE
Mike Hicks

NHDES
Lori Sommer

NHF&G
Carol Henderson

NH Natural Heritage Bureau
Amy Lamb

Consultants/Public Participants
David McNamara
John Stockton
Vicki Chase
Christopher Fournier
Clint Mercer
Matt Lundsted
Ryan McMullen
Tom Cleary
Shawn Flynn

(When viewing these minutes online, click on an attendee to send an e-mail)

PRESENTATIONS/ PROJECTS REVIEWED THIS MONTH:
(minutes on subsequent pages)

(When viewing these minutes online, click on a project to zoom to the minutes for that project)

NOTES ON CONFERENCE:

Finalization March 15th, 2017 Meeting Minutes
Matt Urban asked the group if they had any additional comments for the March 15th 2017 meeting. BOE had received comments already from Gino and from a few other projects. The group did not have any further revisions. The minutes were finalized and posted in a subsequent day.

Haverhill, #40557 (Non-federal)
The purpose of the project is to repair the corrugated metal pipe arch that carries NH 116 over Clark Brook, and place riprap at the wingwalls and remove some deposited material within the culvert (Haverhill Bridge #158/066).

Steve Johnson presented an overview indicating that there are two bridges on NH 116 listed on the NHDOT inventory as crossing Clark brook. We are only addressing the western location. Clark Brook is unusual in that it splits just upstream from the bridge. StreamStats does not even show a stream at the location of this bridge and it shows only the main branch of Clark Brook continuing west crossing under Pinnacle Hill road, not crossing NH 116 at the subject bridge location.

Steve Johnson showed photos of Clark Brook at the Stream Split location, the pipe arch bridge that we propose to repair, and the upstream and downstream bridges on the main channel of Clark Brook. The pictures show that the bridges on the main channel upstream and downstream are significantly larger than the side channel where our project is located.

Steve Johnson indicated that the repair of the pipe arch would entail extending the concrete footing concrete up 8" to 1' above the deteriorated base of the pipe arch. Some riprap would also need to be placed at the wingwalls.

Lori Sommer asked the approximate size of the culvert. Steve Johnson indicated that he thought it was approximately 7' x 3' and he would clarify. **Subsequent to the meeting Steve Johnson clarified the bridge dimensions; the bridge is 7.6' x 4'.* A question was raised regarding the stream tier size. Steve Johnson indicated that it was difficult to determine the tier size since StreamStats does not even show a stream; however, Clark Brook is a Tier 3 Stream just upstream from the split.

Steve Johnson indicated that the preferred option for repair due to the restricted space would be to place a sandbag cofferdam at the stream split and divert all the water to the main branch of Clark Brook. The work would take approximately 3 weeks to complete. The other option would require placement of sandbags upstream and downstream of the culvert and putting a 12" pipe to carry the water through the structure. This option would take longer than twice the diversion option since we would need to rebuild the cofferdam between phases. Carol Henderson asked if we could sand bag down the middle of the pipe instead. Due to the restricted space, it is not feasible to place sandbags in the structure since this would limit the room available to work.

Mike Hicks indicated that Clark Brook is and Essential Fish Habitat and Carol Henderson indicated that two dams downstream had already been removed. Jamie Sikora asked that we confirm with the NHDOT historic coordinator that the bridge was not historic. Mike Hill asked if we had submitted the bat forms, it was answered that they would be submitted.

The group was questioned on whether stream diversion was a possibility. Carol Henderson indicated that if this was done, it would be best to do the work during low flow in the summer, after the beginning of June,

but before fall spawning in September and October. Installing the diversion cofferdam early in June would prevent fish from spawning in an area that could dry up. Steve Johnson indicated that we are unlikely to have a permit until July so we couldn't install the cofferdams at that time. Carol indicated that it would be OK if the work didn't occur until late July, or August.

The consensus of the group was that the stream diversion option was acceptable.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Bedford, #16156 (Non-federal)

Stantec presented an update to the Bedford 16156 - Bowman Brook culvert project. It had previously been presented at the July 16, 2014 and December 16, 2015 meetings. The project involves the addressing of the red listed culvert, which crosses under NH Route 114 and the Old Bedford Road bridge at a 45-degree skew.

Several box culvert alternatives were reviewed early in the process, but none were able to reasonably conform to the Stream Crossing Guidelines. The location of the bridge, depth of bedrock, traffic volumes, maintenance issues and significant costs all contributed to the decision to dismiss these alternatives.

In December 2015, Stantec discussed an alternative at the Resource Agency Meeting that would reduce the length of the existing pipe, creating additional natural bottom stream bed to self-mitigate the project. The remaining pipe would be lined, and retaining walls would be constructed to support the shortened pipe while maintaining the site grading. In order to maintain the upstream flood elevations, a 30" overflow pipe was required. This alternative created additional natural streambed, allowed for a roughened bottom of the remaining pipe, repaired scour near the existing pipe outlet and called for the installation of plantings downstream of the project site.

Since that time, Stantec has refined the design of the project, including the proposed retaining walls necessary to support the roadway embankments at the inlet and outlet of the shortened pipe. There are several areas of concern with the design, largely related to the wall size and site constraints. Stantec undertook a wall selection process, dismissing several common wall types due to site constraints. Gravity and MSE walls were not feasible due to the proximity of the roadways preventing open cuts necessary to construct these wall types, and the high ledge elevations prevent the ability to shore the excavations with sheeting. This also prevents a permanent sheet pile wall system as the solution. Stantec settled on a soil nail wall system. While this system is generally feasible with similar site constraints, there are still concerns. NHDOT reviewed the system from a geotechnical standpoint and concluded this configuration had too much construction risk. It is not a wall type commonly used in New Hampshire, and this site presents some similar attributes to other projects that have experienced construction difficulties with soil nail wall systems. The existing soils are generally fill, and less likely to be self-supporting during construction, groundwater is high, there are boulders and cobbles expected within the overburden, and there is an adjacent sewer line that could be impacted by the construction of the wall system. It is NHDOT's opinion that a soil nail wall is un desirable in this location.

Therefore, Stantec is now proposing to maintain the full pipe length, line it with a centrifugally cast concrete pipe, and add headwalls at the inlet and outlet. This eliminates the need for large retaining walls and the lined pipe does not require an overflow pipe to maintain upstream flood elevations due to the flow characteristics of the lining versus a natural streambed and improved inlet conditions.

The benefits of this option includes:

- Ability to Roughen Culvert Invert
- Minimize Change in Invert Elevation
- Repair Scour
- Elimination of 30" Overflow Pipe
- No Increase in 100-Yr Upstream Flood Elevation
- Headwalls Improve Flow Characteristics
- Headwalls Constructed at Top of Mitered Edge
- Minimize Construction Risk
- Minimize Construction Duration/Impacts

The new headwalls will be located where the crown of the pipe daylights, slightly reducing the overall length as the mitered ends will be eliminated.

Carol Henderson of NH Fish and Game asked if there would be connectivity through the stream following the pipe work and scour repair. Stantec responded that yes, there will be. There is enough grade change to allow for a smooth stream bed to be maintained following the lining. Vicki Chase of Normandeau added that John Magee (NH Fish and Game) had noted that there are brook trout and slimy sculpin in the watershed and may pass through this culvert. He was concerned as well about connectivity. Stantec noted the scour is near the end of the outlet, and will be filled.

Lori Sommer (NHDES) asked about areas of new impact, Stantec responded that the work to install each headwall and repair the scour would be new impacts. Lori stated that mitigation was required for new impacts, which in this case includes approximately 25 feet of channel impact at the inlet, 40 feet at the outlet for a total of 65 feet of channel impact.

Matt Urban noted that the impacts should be shown as permanent, and that the permit application will be submitted as an alternative design, as this does not meet the Stream Crossing guidelines.

Carol Henderson asked about the perched condition at the outlet, which had been noted at the December meeting. Vicki Chase stated that it was not perched in the initial Stream Crossing Assessment and she has not seen evidence of this in her time on the project. Carol stated that if it is determined to be perched during construction, that the condition be repaired. Stantec and NAI concurred.

It was noted that the NHB needs to be updated for the permit application.

Victoria Chase (NHDOT) stated that the permit will be coming soon, and that the project is scheduled to advertise in September.

This project has been previously discussed at the 7/16/2014 and 12/16/2015 Monthly Natural Resource Agency Coordination Meetings.

Center Harbor – New Hampton, #24579 (X-A002(923))
Christopher Fournier introduced the project. This is the first time this project has been presented at the Natural Resource Agency meeting. The goal of the project is to rehabilitate the redlisted bridge (Br. No. 080/040) carrying Waukewan Road over Lake Waukewan Inlet between the Town of Center Harbor and the Town of New Hampton.

Waukewan Road connects U.S. Route 3 in Center Harbor to Winona Road in New Hampton. The existing bridge has a reinforced concrete slab superstructure with mortared cut stone abutments. It has a span of 13 feet and is located on an S curve in the road. The road narrows to 19'-4" at the bridge and the bridge has

an out to out width of 21'-2." Deficiencies in the existing bridge include exposed rebar with corrosion on the underside of the concrete slab and cracking and voids in the stone abutments.

After completing three public information meetings and two supplemental work sessions, a preferred alternative has been selected with extensive public input. The project is currently in the TS&L phase with NEPA documentation scheduled for the summer of 2017. The current project timeline has contract plans completed in the fall of 2019 with the project advertisement in January 2021 and construction in the summer of 2021.

The considered alternatives were presented as well as the preferred alternative. The preferred alternative involves new abutments being constructed behind the existing stone abutments with a new voided slab bridge spanning the new abutments. This includes raising the road as necessary to accommodate the deeper bridge structure. It maintains 2 lanes with the existing rail to rail width of 19'-4", a narrower curb to curb width of 18'-4" and a wider out to out width of 22'-4."

A Wetland Delineation and Report was completed for the project which identified prime wetlands in Center Harbor with New Hampton prime wetland designation underway. There are 14 classifications of wetland areas in the vicinity of the project. A maximum of 1,250 square feet of temporary wetland impacts and 750 square feet of permanent impacts are expected for the project.

The Natural Heritage Bureau identified the Common Loon as a rare species in the project area. The USFWS IPaC preliminarily identified the Northern Long-eared Bat, Migratory Birds and Small Whorled Pogonia as natural communities in the area.

Matt Urban asked if any parts of the existing stone abutments will have to be removed for the new structure to be put in place. C. Fournier stated that the plan is to span over the existing stone abutment and re-stabilize the stones while doing the work.

Lori Sommer asked if the wetland is a prime wetland and Jaimie Sikora asked if there is any canoe traffic in the area. C. Fournier responded that it is a prime wetland and there is canoe traffic. There is local concern about the prime wetland and the preferred alternative is the only option to receive public support because it is in-kind. Rick Van de Poll, CWS has worked with both Towns regarding their prime wetland designation.

M. Urban asked if the town line is on the middle of the bridge. C. Fournier answered that it is and is technically through the wetland crossing, indicating that the crossing is not riverine. C. Fournier noted that the impact plan previously outline was generous and although fill slopes are needed, the hope is the keep them within the ROW footprint.

Mike Hicks asked if a Pogonia survey has been done. C. Fournier stated that this has not yet been done. Carol Henderson commented that John Coolie of the Loon Preservation Committee should be contacted for a recommendation on the best time to schedule construction with regards to the Loon's nesting. C. Fournier responded that the plan is for a road closure and the construction schedule is flexible so there is potential to schedule around the natural resources.

M. Hicks asked if he heard correctly that the project was not eligible to be listed on the national register of Historic Places in accordance with Section 106 of the National Historic Preservation Act. C. Fournier confirmed that this was correct.

Melilotus Dube commented that the characteristics of the prime wetlands have been kept in mind throughout the project because the town values and has expressed interest in the wetlands remaining the way they have been designated.

M. Urban stated that any impacted prime wetlands need on site mitigation and asked what would be good mitigation for the area and if plantings on new slopes would be acceptable. L. Sommer suggested enhancement measures such as invasive species removal, plantings and revegetating open areas. M. Urban stated that the idea is to do native plantings where any slope work is done. C. Fournier commented that no invasive species have been noted in the area and there is shrubbery in the existing area where fill slopes are likely.

M. Dube stated that there is an unofficial access location to the wetlands in the project area and asked if something could be done about this due to concern over the potential introduction of invasive species. L. Sommer asked if this was causing any erosion in the area and the possibility of a "prevent invasive aquatics" sign was proposed. M. Urban expressed concern that signage may encourage access as the public may misinterpret this as a formalized access point. C. Fournier stated that this is town owned property and the town fire department uses the access. J. Sikora asked if there are formal access points in the area and M. Dube responded that there are.

L. Sommer asked if areas of invasive species could be looked into. C. Fournier confirmed that there are no invasive species in the project area, but there are known populations in the vicinity of the bridge outside of the project area. M. Dube responded that it is preferred not to expand the scope of the project by considering invasive species outside the work area.

L. Sommer suggested revegetating the banks with native species, but that the preservation of the existing condition which contributes to the characteristics included in the prime wetland classification qualifies the work as generally self-mitigating. Amy Lamb encouraged looking at the species on site and to source new plantings locally if possible.

J. Sikora stated that a Coast Guard exception from Federal Highway was needed.

No further questions or concerns were raised with the project as presented.

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Lebanon, 15880 (A001(008))

Ali Skinner, NHDOT, presented an overview of the scope of work and projects limits. The project is a 4R project which includes pavement rehabilitation, guardrail replacement, bridge maintenance and drainage repairs and upgrades. The work begins at MM 54.65 and extends northerly on I89 5.35 miles to MM 60.0 in the City of Lebanon. A 0.5 mile section near Exit 19 will be excluded as this area will be included in a different project intended to rehabilitate bridges at this location. The work will include:

Paving

- Mainline, Exit 18 SB Off ramp-, SB Rest Area, NB and SB Weight Stations.

Bridge Work

- Heater Road Bridge: expansion joint repair and substructure patching.

- Poverty Lane Bridge: partial/full depth deck repair, pier protection.
- Pier protection also proposed at 4 other bridges.

Guardrail

- Replace approximately 68,000 LF with approximately 2,900 LF of extensions.

Other

- Median barrier protection replacement with approx. 1,000 lf of new barrier

Drainage

- Minor drainage work: replacing small diameter slope drain pipes and repairing/stabilizing slope drain outlets, reestablishing vegetated ditch lines, repair/reconstruct/replace catch basin and drop inlets, replace underdrain and repair/construct underdrain headwalls, repair sinkholes and stabilize slopes.
- 10* major crossing locations including pipes ranging from 24" to 66" in diameter with proposed work including dredging and stabilizing channels, installing stone fill, repairing or reconstructing MRM headwalls, replacing/resetting/repairing pipe end sections and joints, and slip-lining at 3 locations (48" RCP, 36" CMP and 36" RCP).

Meli Dube reviewed the results of the environmental review so far:

- The work has been reviewed by the NHDOT Air Quality and Noise Pollution Program and there are no concerns for impacts to these resources.
- The proposed project has been reviewed by the NHDOT Cultural Resources Program and has been determined to have "No Potential to Cause Effects" to historic properties in accordance with Appendix B of the Section 106 Programmatic Agreement.
- The project area has been reviewed by NHNHB twice, the latest DataCheck memo (NHB17-0210, January 2017) indicated that though there are known records in the area, there are no anticipated impacts as a result of the proposed work. Amy Lamb offered to confirm this finding now that more details have been provided at the meeting.
  A. LAMB CONFIRMED THAT THERE ARE STILL NO CONCERNS FOR IMPACTS TO ANY PROTECTED SPECIES IN A FOLLOW-UP EMAIL ON 4/19/17
- The proposed work is located in/crosses floodplains in several locations including flood hazard zones A and AE. The proposed work is not expected to increase the base flood elevation in the project area.
- There are no concerns for impacts to any publicly or privately funded conservation lands. All work will remain with the States limited access right-of-way along Interstate 89.
- There is ongoing coordination to ensure that all potential point source contamination and limited reuse soils are identified and handled appropriately.
- Type I and Type II invasive species were identified and delineated throughout the project area. An Invasive Species Management Plan will be required in the contract documents.
- The proposed work will involve more than 1 acre of overall earth disturbance so the project will qualify for coverage under the NPDES CGP. A SWPPP and monitoring will be required. There is no proposed increase in impervious surface so no permanent stormwater treatment is required.
- The project is located within ¼ mile of the Mascoma River for the majority of the area. The Mascoma River Local Advisory Committee has been contacted and will have an opportunity to review the wetland application package.

M. Dube provided details for the proposed work at the 10* major drainage crossings:

1. MM54.9/STATION 669: R3UB1, twin 66" RCP, Tier 3 stream crossing*
   Outlet SB- dredge channel, install stone
2. MM56.1/STATION 731+25: PSS1E, twin 66" RCP
   Inlet NB- dredge channel, install stone, reset 3-4 sections of pipe, replace headwall
   Outlet SB- dredge channel, install stone, reset 1 section of pipe, replace headwall
3. MM56.2/STATION 736+50: PEM2E, quad 66" RCP
   Inlet NB- dredge channel, install stone, reset 1-2 sections of pipe, replace headwall
   Outlet SB- clear trees, dredge channel, install stone, repoint headwall
4. MM56.5/STATION 754+25: R3UB2/PEM1E, twin 66" RCP---- Tier 3 stream crossing
   Inlet NB- dredge channel, install stone, replace/reset 1-2 sections of pipe, install headwall
   Outlet SB- dredge channel, install stone, replace headwall
5. MM56.6/STATION 761+75: PEM1E, single 48" RCP
   Inlet SB- dredge channel, install stone, replace headwall, slipline pipe
   Outlet NB- dredge channel, install stone, replace headwall, replace 1 section of pipe, slipline
6. MM57.3/STATION 799: PSS1E
   NB single 24" CMP
   Inlet NB- dredge channel, install stone, replace headwall, slipline
   Outlet Median- replace headwall, slipline
   SB single 36" CMP
   Inlet Median- dredge channel, install stone, replace headwall, slipline
   Outlet SB- dredge channel, install stone, replace headwall, slipline
7. MM57.5/STATION 806: R4SB3, single 48" RCP---- Tier 1 stream crossing*
   Inlet SB- dredge channel, install stone, replace headwall
   Outlet NB- clear trees, dredge channel, install stone, replace headwall
   (M. Dube misidentified this crossing as a Tier 2 during meeting discussions)
8. MM58.8/STATION 877+25: PSS1Ex, single 42" RCP
   Inlet SB- dredge channel, install stone, replace headwall
   Outlet NB- cut pipe back or replace 1 section, dredge channel, install stone, replace headwall
9. MM58.9/STATION 882: PEM1E/PEM2E, single 36" RCP
   Inlet SB- dredge channel, install stone, replace 1 section of pipe, replace headwall
   Outlet NB- dredge channel, replace 2 sections of pipe, slipline, replace headwall
10. MM59.7/STATION 923: R2UB1,2, single 42" BCCMP---- Tier 1 stream crossing
    Inlet SB- remove check dam, replace headwall, dredge, stone
    Outlet NB- cut pipe back, install headwall, dredge, stone

Matt Urban noted that much of the wetland impact area is due to the many small impact locations spread out along the I89 corridor associated with slope drain pipe outlet work and other minor drainage work. Much of the impact area is due to temporary impact for access and erosion control, with preliminary estimates around 33,000 square feet. Additionally, most of the proposed drainage work would qualify as Routine Roadway Maintenance if it was located outside the designated river corridor. Existing man-made and maintained ditch lines were delineated as Non-Jurisdictional Drainage Areas and will be shown on the plans as such, however, there are no wetland impacts associated with these areas.

Jamie Sikora, FHWA, asked if there are any bike paths through this stretch of I89. M. Dube confirmed that there are none. Mike Hicks, ACOE, stated that the Mascoma River is designated as Essential Fish Habitat and that coordination with OEP National Marine Fisheries should be completed.

Carol Henderson, NHFG, requested that any streams crossings with an existing perched condition are improved. Matt Urban, NHDOT, clarified that most of the existing drainage pipes are connected by catch basins so current connectivity is limited. Kathy Corliss, NHDOT, confirmed that the work as proposed will not change the elevation of any pipes but that small perches can be addressed by placing stone.

Lori Sommer, NHDES, asked how mitigation will be calculated for this project. M. Urban indicated that if permanent wetland impacts exceed the 10,000 sf threshold, mitigation will be calculated appropriately per current DOT procedures. He also confirmed that there will likely be small sections of permanent stream impacts which will require mitigation, but that some areas such as those where stone rip rap currently exists, may not due to the exemption which allows for maintenance of existing infrastructure. Photos of the following stream crossing locations were reviewed and the following mitigation agreed upon:

1. MM54.9/STATION 669: R3UB1, twin 66" RCP --- Tier 3 stream crossing*
    - Existing stone, no mitigation necessary
2. MM56.5/STATION 754+25: R3UB2/PEM1E, twin 66" RCP --- Tier 3 stream crossing
    - No existing stone, mitigation will be necessary for impacts at inlet and outlet
3. MM57.5/STATION 806: R4SB3, single 48" RCP --- Tier 1 stream crossing*
    - No existing stone, mitigation will be necessary for impacts at inlet and outlet
    - Small perch visible at outlet, this will be addressed by placing stone
4. MM59.7/STATION 923: R2UB1,2, single 42" BCCMP --- Tier 1 stream crossing
    - No photos of outlet available, mitigation is assumed necessary
    - Photos of inlet show an existing check dam consisting of small sections of CMP, likely from previous I89 construction or maintenance work. The proposed work will remove this check dam and improve connectivity in this section of stream, resulting in self-mitigating stream impacts. No additional mitigation necessary at the inlet.

L. Sommer asked if the community and local conservation commission have been contacted. M. Dube confirmed that all city officials were notified of the proposed project and will be allowed additional opportunity to comment on the wetland application package. To date, the only response received is from the Lebanon Fire and Police Departments regarding maintenance of emergency access routes during work on the Poverty Lane Bridge.

SUBSEQUENT TO THE MEETING, THE WORK AT MM54.9/STATION 669 WAS REMOVED FROM THE PROJECT SCOPE AND THE WORK AT MM57.5/STATION 806 WAS DETERMINED TO BE ELIGIBLE FOR A ROUTINE ROADWAY MAINTENANCE PBN. WORK AT THESE LOCATIONS WILL NOT BE INCLUDED IN THE STANDARD DREDGE AND FILL APPLICATION

This project has not been previously discussed at a Monthly Natural Resource Agency Coordination Meeting.

Walpole-Charlestown, #14747 (X-A004(487))

Sam Fifield began the meeting with a general description of the project noting that the existing pavement of NH 12 ranges from 22 feet to 24 feet wide with no shoulders and that the proposed project will widen NH 12 to 11 foot wide travel lanes with 4 to 5 foot wide shoulders. As the new design widens the roadway west to avoid the New England Central Railroad (NECR), the project proposes to reconstruct the bank of the Connecticut River. Reconstructing the riverbank slope will stabilize the slope and eliminate a potential slope failure. The proposed riverbank slope will consist of exposed stone for the portion located at an elevation of 2-feet above the ordinary high water (OHW) to the toe of slope under water. The riverbank slope will also consist of stone covered with 6 inches of humus and native foliage for the upper portion of the slope located at an elevation above 2-feet above OHW. At the last Natural Resource meeting in February, the proposed slopes shown in the southern segment were 1.5H:1V. The design has been adjusted to eliminate the previously proposed temporary bench and creates slopes that range from 1.75H:1V to 2H:1V that allows the contractor to construct the slope without the temporary bench. This modification also allows the design to reflect actual construction conditions and impacts, as the previously proposed temporary construction bench would most likely have caused permanent impacts to the river.

Mike Hicks inquired about the total impacts below OHW, including both temporary and permanent, to determine if an Individual Permit is required from the Army Corp of Engineers (ACOE). Sam F confirmed that the project will be seeking an Individual Permit from ACOE since the total impacts beneath OHW exceeds three acres. In addition, Sam noted that the project will require a Water Quality Certification (WQC). She noted that the project increases the total area of impervious pavement by 2.3 acres and that treatment will be provided for approximately 7.3 acres. The proposed BMP is an infiltration stone bed located below the roadway that is fed by stone infiltration trenches adjacent to the paved shoulders. Sam F also noted that Greg Comstock (DES) has been consulted about the BMP.

Lori Sommer inquired about Operation and Maintenance (O&M) of this type of BMP. Sam F answered that based on her research the O&M would be to scrape off the top 6-12 inches of the infiltration trench every 10 years or so when the roadway is resurfaced and or when the guardrail requires replacing. Laurie S commented that this would be a good project for long-term monitoring. Tom Cleary noted that the proposed BMP would be similar to porous pavement.
Carol Henderson asked if this BMP had been tried before and how it might differ from porous pavement. Porous pavement needs to be vacuumed frequently for O&M. Sam answered that the voids within the proposed stone trench would be much larger than within porous pavement so O&M could be much less frequent.

Mike H inquired about the total square footage of impact below OHW. Don Lyford noted that he believed that regulatory limit for this location would be 3 acres and Sam F noted that the design exceed that limit. Matt L confirmed that the total impacts below OHW are approximately 151,686 square feet (3.48 AC). Tom C noted that the toe of slope in the southern segment does not go beyond the previously proposed limit of temporary impact associated with the previously proposed construction bench.

Mike H inquired whether any of the work could be classified as maintenance work. Matt L noted that was not the case, and that the majority of work is slope work.

Matt Urban referred to the draft impact table, which had been distributed to the panel, and inquired of DES whether or not the portion of the bank above OHW (that is proposed to be vegetated) could be considered self-mitigating. He noted that if that was the case then removing that length from mitigation requirements would save the project approximately 1.3 million in ARM Fund fees. Lori S stated that she would bring that question back to the DES Wetlands Bureau for discussion. She noted that if DES agreed that reestablishing the vegetated growth is self-mitigating then it is likely that 3 to 5 years of monitoring would be required to make sure vegetative growth is established and reminded the Design team that this condition should be a budget consideration. Matt U stated that it is likely that they would submit the wetlands applications without this mitigation concurrence and Lori S stated that this would be acceptable. Matt U also suggested that this would be acceptable mitigation for riprap within the river and Lori agreed.

Lori S inquired as to how the southern slope would be constructed. Tom C responded that a narrow access road would likely be constructed above OHW elevation within the limits of the proposed slope work and that the bottom portion of the proposed stone slope located under water would then be built from that access road. Once the bottom portion of the slope is built the upper portions can be incrementally built.

Carol H inquired whether this proposed slope work would impact the hydrology of the Connecticut River. Sam F stated that this was likely and that hydrology was still being evaluated. She also noted that a Conditional Letter of Map Revision (CLOMR) and a formal Letter of Map Revision (LOMR), through FEMA, would likely be required for the area within the project limits.
Mike H inquired as to the width of the river in the project area. Sam H brought up an aerial image of the Connecticut River and Meanys Cove and the width of the river was discussed.

Matt L noted that the proposed northern Connecticut River armored slope can be constructed from the existing roadway.

Lori S inquired what other water quality treatment measures were considered. Sam F responded that the Department had previously looked at constructing formal BMPs in the southern segment of the project. However, the opportunities were limited due to the lack of available area, unsuitable soils and slope stability issues. For the current design, the Department looked at using an open graded friction course on the full width of the pavement. However, this pavement has longevity issues and high maintenance costs. The Department also looked at installing porous pavement shoulders. However, construction costs would have been exceedingly high and this type of BMP requires continuous maintenance. And lastly the Department looked at constructing a standard wet extended basin (located in the flat field at the north end of Meanys Cove). However, while the basin could be sized to accommodate the project's treatment requirements only a fraction of the required pavement runoff could be diverted to this BMP. Don L noted that the design is currently proposing to treat three times the increase in impervious cover.

Lori H inquired whether the Department has met with the communities. It was noted that there will be an additional public meeting scheduled for some time in June of 2017. Matt U noted that at that time the Department would solicit input from the Towns for ARM Fund projects.

Amy Lamb stated that the latest NHB report noted some species and aquatic plants. Matt L provided an update noting that a dwarf wedge mussel survey had been completed in July of 2016 and that a survey for the Northern Bulrush was also completed at that time. Amy L then referred to the Stoney Ridge vegetative surveys that were completed in 2015 and noted that the Department should verify if the design impacts any areas with appropriate habitat that were not surveyed in 2015. She stated that an additional plant survey will be needed if the new design impacts potential plant habitats. She stated that she can narrow down the limits of where plant surveys are needed if the Department provides her with the water depths in the areas outside of previously known impacts.

Carol H inquired as to when work might begin. Sam F responded that the clearing work might begin in December of 2017 or January of 2018. Carol H suggested that of the Department notify Fish and Game when construction starts since this is a popular bass fishing area.

This project has been previously discussed at the 4/18/2007, 8/20/2008, 5/20/2009, 10/29/2009, 4/21/2010, 6/16/2010,1/20/2016, 03/15/2016, and the 02/15/2017 Monthly Natural Resource Agency Coordination Meetings.